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"On the same day Dr. Jacob read a paper on certain fossil polyparia found in alluvial deposits in the vicinity of limestone hills.

"The fossils alluded to are found deeply embedded in a stiff clay which lies to a great depth on the sides of the limestone hills, called Dunamace range, in the Queen's county, the situation is particularly described, to elicit descriptions of the locality of similar productions in other situations. The condition of these organic remains, although not now first noticed, Dr. Jacob considers highly interesting and well worthy of more attention than has been hitherto paid to them by geologists, affording, as they do, evidence of successive chemical changes in composition, calculated to elucidate the obscure subject of the envelopment of organic fossils. The coral is siliceous and embedded in a matrix of limestone, much of which has been removed by some solvent, leaving the animal product in a fine state of preservation exposed. The original carbonate of lime of animal origin, appears to have been removed and silex substituted for it, so exactly that the most delicate lineaments of the fossil are preserved; this again appears to have been embedded in the carbonate of lime, constituting the present limestone matrix, which matrix has since been partially removed, leaving the siliceous coral projecting from the block. This dissection of the fossil, Dr. Jacob considers to have taken place while the fragment lay in the soil protected from the atmosphere, but exposed to the solvent effects of water and carbonic acid. Some doubts are entertained as to these fossils being separated from the rocks in the vicinity, as they are not found except sparingly in the quarries; in which case they must be derived from some more distant source, and constitute part of a great mass of detritus.

"On Thursday, in the Zoological Section, Mr. Sturge, of Birmingham, read a highly interesting paper on the recent discovery of a Toad in a sandstone rock in Park Gardens, Coventry, during the excavation of the hill for the railway. Portions of the rock having been separated, a number of them were thrown into a waggon, and the one containing the animal having fallen off, was separated by the fall into two portions; in one of these John Hart and Thomas Tilly, two of the workmen, discovered it, and, with a kick of the foot, dislodged it from the cavity alive. The other workmen were then called to witness the fact, and the animal and the two fragments of the stone were taken home by the engineer, who again introduced the animal, and closed them up. In this manner, with some occasional disturbance, it lived for a period of four days. The sandstone was tolerably porous, but quite free from damp from which the animal could draw nutriment, or any fissure by which it could be supplied with air for respiration. A very interesting conversation here took place as to the state of vitality in which the animal existed previously to its discovery. It was maintained by one of the section, that it must have been hermetically sealed up in a state of torpor, otherwise the waste consequent upon respiration must, in course of time, have led to its extinction; and in this opinion he appeared to be joined by almost all present. It was stated by Mr. Sturge, in reply to a question, that on its first enlargement, the animal appeared to suffer considerable uneasiness and difficulty of breathing; but he was unable to say whether the concussion experienced by the splitting of the rock could have led to its resuscitation, the two workmen already mentioned being the only persons present at the time. Mr. S. informed the section, that he had written to England for the two portions of stone containing the cavity, for exhibition here."

In our Report we mentioned, as an appropriate *finale* to the proceedings of the Association in Ireland, that in the course of the week following that in which the Meetings were held, a large party of the members, chiefly those engaged in geological pursuits, proceeded on a visit to Lord Cole, at his noble residence of Florencecourt, while another, principally such as were interested in astronomical observations, accompanied E. J. Cooper, Esq., M. P. for Sligo, to his seat at Markree, where they had an opportunity of inspecting the very superior astronomical instruments belonging to that distinguished and scientific individual; one of them, his Achromatic Telescope, of which there is an engraving on the opposite page, is the finest in the world; the object glass, which is 13.3 inches in diameter, being the largest ever made. Indeed, it is a matter calculated to afford gratification to Irishmen, that a private gentleman, residing in a remote district of the country, should have, in a complete and well-appointed observatory, the most efficient telescope in the universe.

DESCRIPTION OF THE EQUATORIAL MOUNTING OF MR. COOPER'S GREAT ACHROMATIC TELESCOPE.

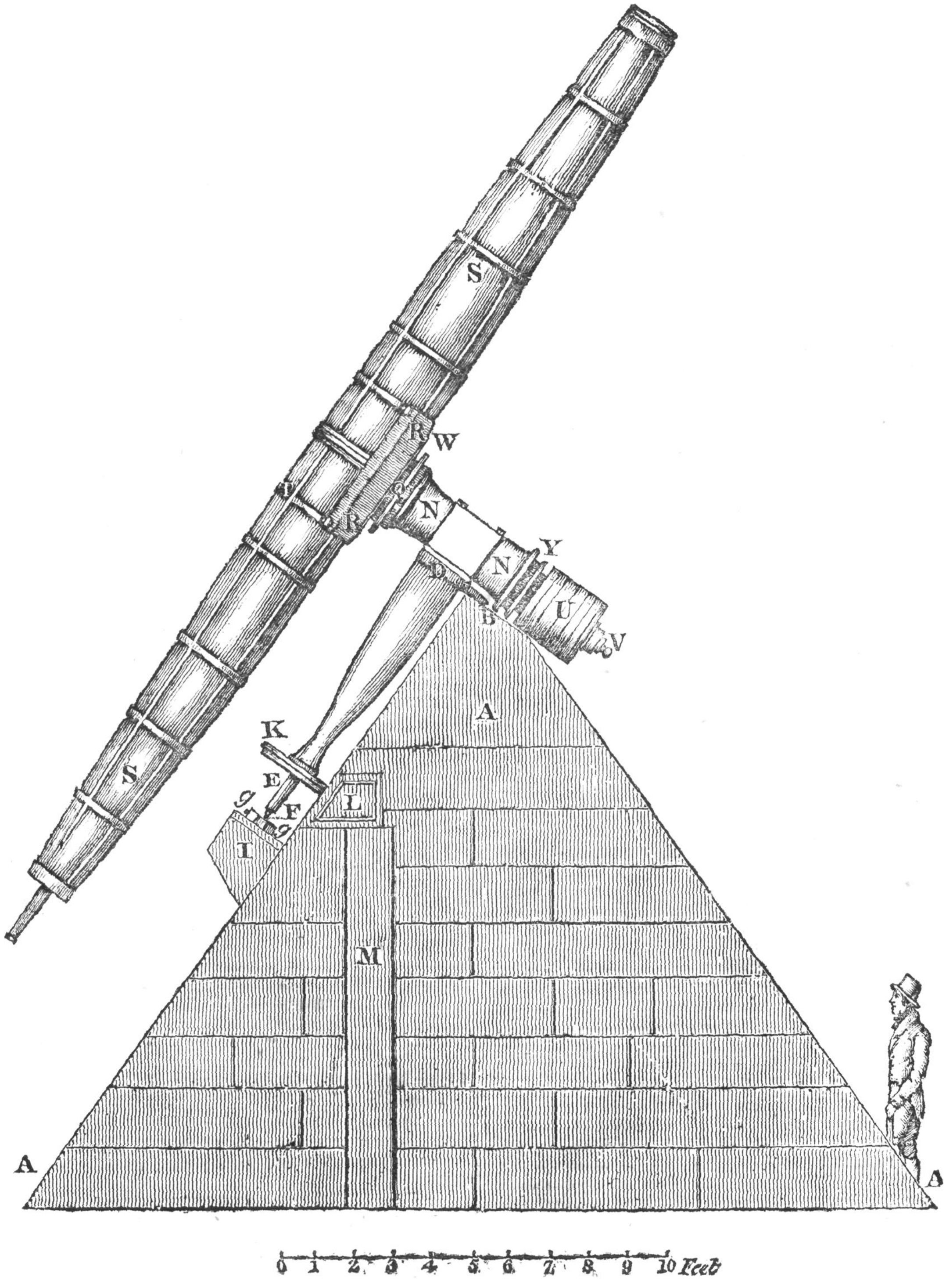
The sketch is an elevation on a scale of ¼ inch to a foot, of the Telescope, &c. as seen from the east side, and represents the instrument as pointed to the Polar Star, at six hours after transit.

The Pier, A,A,A, is composed of large blocks of black marble, well jointed, and in some places cramped together, four feet thick at base, and decreasing to three feet and a half at top; the north and south sides are sloped to the latitude of the Observatory, viz. 54° 10′, and have steps, (not seen in the figure,) and also landing places cut in them for convenience of ascending and reading the circles.

Two feet of the north side at B is sloped off, so as to form a right angle with the south side; into this part a strong cast iron frame is fixed, carrying two cast iron rollers, twelve inches diameter, with steel pivots, one inch and a half diameter, turning in very hard bell-metal bearings; part of one of these rollers is seen at C, they support the Polar Axis at its upper bearing, touching it in points, making an angle of 90° with its centre. D, E is the polar axis, of cast iron, turning between the friction rollers at D, at which place it is fifteen inches and a quarter diameter, and its lower part ending in a hardened steel pivot, turning in a block of very hard bell-metal at F; this block is moveable in the cast iron block, G, by means of four screws, *g*, and serves to adjust the polar axis; the box is screwed on the planed surface of a strong cast iron plate, H, which is firmly attached to the stone, I, projecting out of the Meridian side of the pier. K, the hour-circle of cast iron, with a strong circle of brass, properly secured to it, having its edge ratched into 720 teeth, in which the endless screw, connected with the clock, works, and graduated on the under side. L, a metal box going from side to side of the pier in the clock-work.. M, a channel in pier for the clock-weight. N, N is a strong hollow piece of cast iron, square in centre for sixteen inches, and at each end cylindrical, with strong flanges; it is attached to the polar axis by four bolts, *n*, and carries friction rollers, 7 inches diameter; working on steel pivots, one one-fourth diameter; two of these rollers are seen at O, on them turns the declination axis, a small part of which is seen at P and Q: they support the axis at points which form an angle of 120 degrees with the centre of the axis, and therefore always include the centre of gravity of the latter between them. The declination axis of cast iron, twelve inches diameter, has, on the end next the telescope, a square flange, to which the cradle, R, is attached by four bolts; it is prevented sliding off the rollers, (or in the direction of its own length,) with very little friction, by means of a roller, five inches and a half diameter, having a long spindle fixed to it, and turning in bearings placed in the polar axis; this roller moves in a groove cut in the declination axis; the latter will on being inclined either way by the turning of the polar axis, cause one of the sides of the groove to bear against the roller, which, by partaking of any motion given to the declination axis, allows of the latter turning freely on its rollers without shifting laterally; the groove being about the hundredth part of an inch wider than the diameter of the roller, prevents the roller touching both sides of the groove at once. To the cradle R, of cast iron, is attached the telescope tube, SS, by two jointed wrought iron straps. T, the tube, is of rolled iron, twenty-four inches diameter in centre, sixteen inches at each end, of a panelled construction, weight 8 cwt. U is the counterpoise in six parts, of cast iron; the interior of each part presents an annular ring divided into six parts by partitions, which are filled with lead, except a space of 1-6th of two of those parts, which, being left vacant, affords a simple means of bringing the centre of gravity of the declination axis, &c. into its centre of revolution. At V is a cylindrical sliding weight, which, by being drawn in or out, adjusts the instrument for any *difference in eye pieces*, &c. W is a ratched circle, fixed to the transverse part of the polar axis; an endless screw attached to the cradle works in it, and turns the telescope in declination. Y is the declination circle, fixed on the declination axis, and led off by microscopes, attached to the upper part of the polar axis.

The entire, being polished, has been rust-bronzed, to resist the effects of damp. A force of three pounds applied to the *eye-tube* of the telescope, is sufficient to move the instrument in any direction. The weights are as follow:

	cwt.	qr.	lbs.
The Equatorial stand, including every part but telescope and counterpoise...	25	3	21
Tube, Object-glass, Eye-tube, &c.......	9	0	14
Counterpoise......................................	12	1	19
	47	1	26



EQUATORIAL MOUNTING OF MR. COOPER'S GREAT ACHROMATIC TELESCOPE.